



CLEAN OIL
BRIGHT IDEAS

Hydraulic Oil Hydro Turbine

CJC™ Application Study

**Application Study
written by:**

Hjalmar Sørgård
Øvre-Johnsen AS
Norway

In cooperation with:

Steffen Buhrkal
C.C.JENSEN A/S
Denmark

2001

CUSTOMER

Statkraft, Region Nord-Norge.
Contact person: Torstein Elvegård

THE SYSTEM

Governor oil system for Hydro Turbine.
Oil volume: 5,200 L of hydraulic oil.

THE PROBLEM

The governor oil system was suffering from irregular and deviant operation caused by resin (oxidation) formation in the valves. The resin formation was identified as a sticky brown layer on all surfaces in the system. Due to resin formation valve malfunctions were becoming frequent, causing unplanned shutdowns.

The consequence of the contamination was that the valves had to be removed and cleaned up to 4 times a year at a cost of EUR 800 each time. The cost of a new valve is EUR 3,000.

THE SOLUTION

In order to arrest the problems and ensure continuous operation a **CJC™ Fine Filter HDU 27/54 MZ** was installed. Two cellulose based **CJC™ Filter Inserts B 27/27** (3µm absolute) were used.

CONCLUSION

After just one month of filtration the turbine operation has become stable and without interruptions.



CJC™ Fine Filter HDU 27/54 MZ

THE RESULT

Date	Water content (ppm)	NAS
07.11.00	245	5
15.11.00	25	3
30.11.00	55	3
15.12.00	30	1